

claims

1. Highly oxidation resistant component (1),
having a substrate (4),
5 a protective layer (17),
which consists of
an intermediate MCrAlY layer zone (16) on or near the
substrate (4),
wherein M is at least one element out of the group Co,
10 Fe, Ni,
and an outer layer zone (19)
which consists at least of the elements Ni and Al and
possesses the structure of the phase β -NiAl, and
wherein the outer layer zone (19) is onto the
15 intermediate MCrAlY layer zone (16),
whereby the Al content lays in the range between 21wt%
and 37wt%.
- 20 2. Highly oxidation resistant component according to claim
1,
wherein the protective layer (17) consists of two
separated layers (16, 19).
- 25 3. Highly oxidation resistant component according to claim
1,
with a continuously graded concentration of the
composition of the intermediate and outer zone (16, 19)
inside the protective layer (17).
- 30 4. Highly oxidation resistant component according to claim
1,
wherein the outer layer zone (19) is thinner than the
intermediate layer (16) on or near the substrate (4).

5. Highly oxidation resistant component according to claim 1,
wherein the intermediate MCrAlY-layer zone (16) has the composition (in wt%): 10% - 50% Co, 10% - 40% Cr, 6% -
5 15% Al, 0,02% - 0,5% Y, Ni base.
6. Highly oxidation resistant component according to claim 1,
wherein the intermediate MCrAlY-layer (16) or the outer
10 layer zone (19) contains at least one further element such as (in wt%): 0,1% - 2% Si, 0,2% - 8% Ta or 0,2% - 5% Re.
7. Highly oxidation resistant component according to claim 1,
15 wherein the Yttrium of MCrAlY of the intermediate MCrAlY zone (16) or the outer zone (19) is added and/or at least partly replaced by at least one element out of the group Hf, Zr, La, Ce and/or other elements of the Lanthanide
20 group.
8. Highly oxidation resistant component according to claim 1, wherein the outer layer zone (19) contains the element chromium.
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9. Highly oxidation resistant component according to claim 1,
wherein the outer layer zone (19) contains the element cobalt.
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10. Highly oxidation resistant component according to claim 1,
wherein the outer zone (19) is added at least one additional element out of the group Hf, Zr, La, Ce or
35 other elements of the Lanthanide group.

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11. Highly oxidation resistant component according to claim 10,
wherein the maximum amount of further additions is 1wt%.
- 5 12. Highly oxidation resistant component according to claim 1,
wherein the MCrAlY layer zone (16, 19) contains Ti (Titanium) and/or Sc (Scandium).
- 10 13. Highly oxidation resistant component according to claim 1,
wherein on the outer layer zone (19) a thermal barrier coating (13) is formed.
- 15 14. Highly oxidation resistant component according to claim 13,
wherein a heat treatment prior to applying a thermal barrier coating is carried out
in an atmosphere with a low oxygen partial pressure,
20 especially at 10^{-7} and 10^{-15} bar.